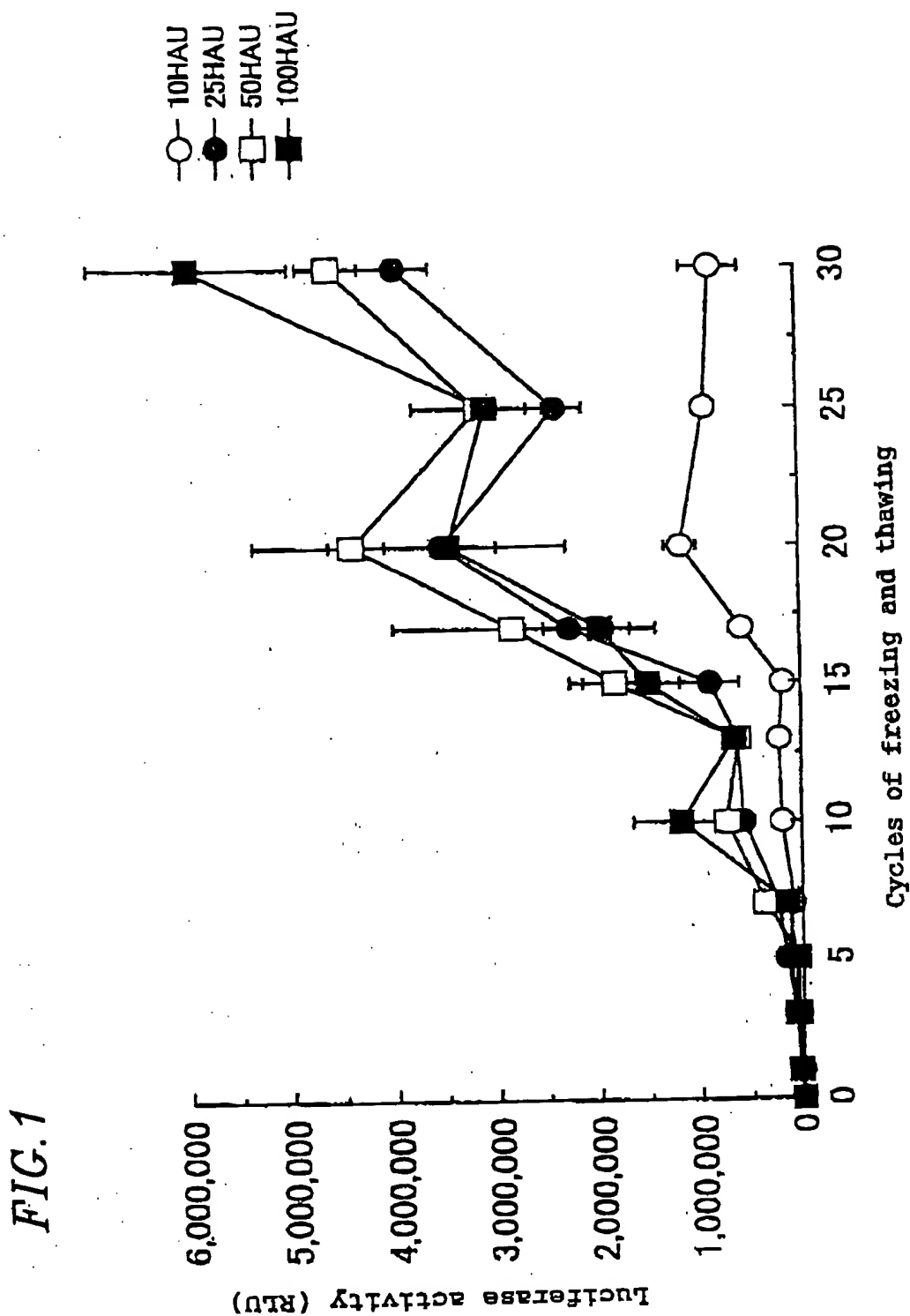
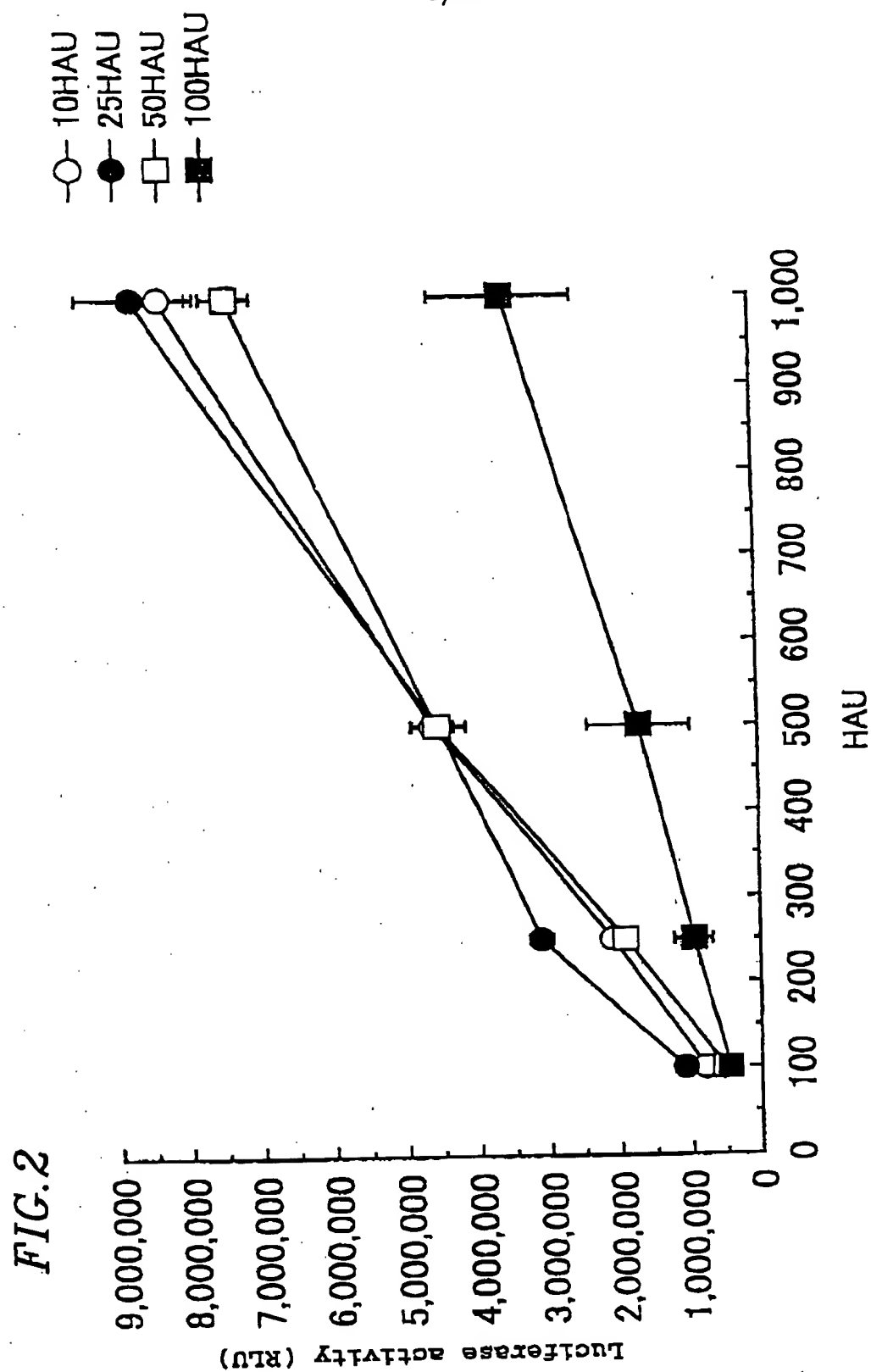


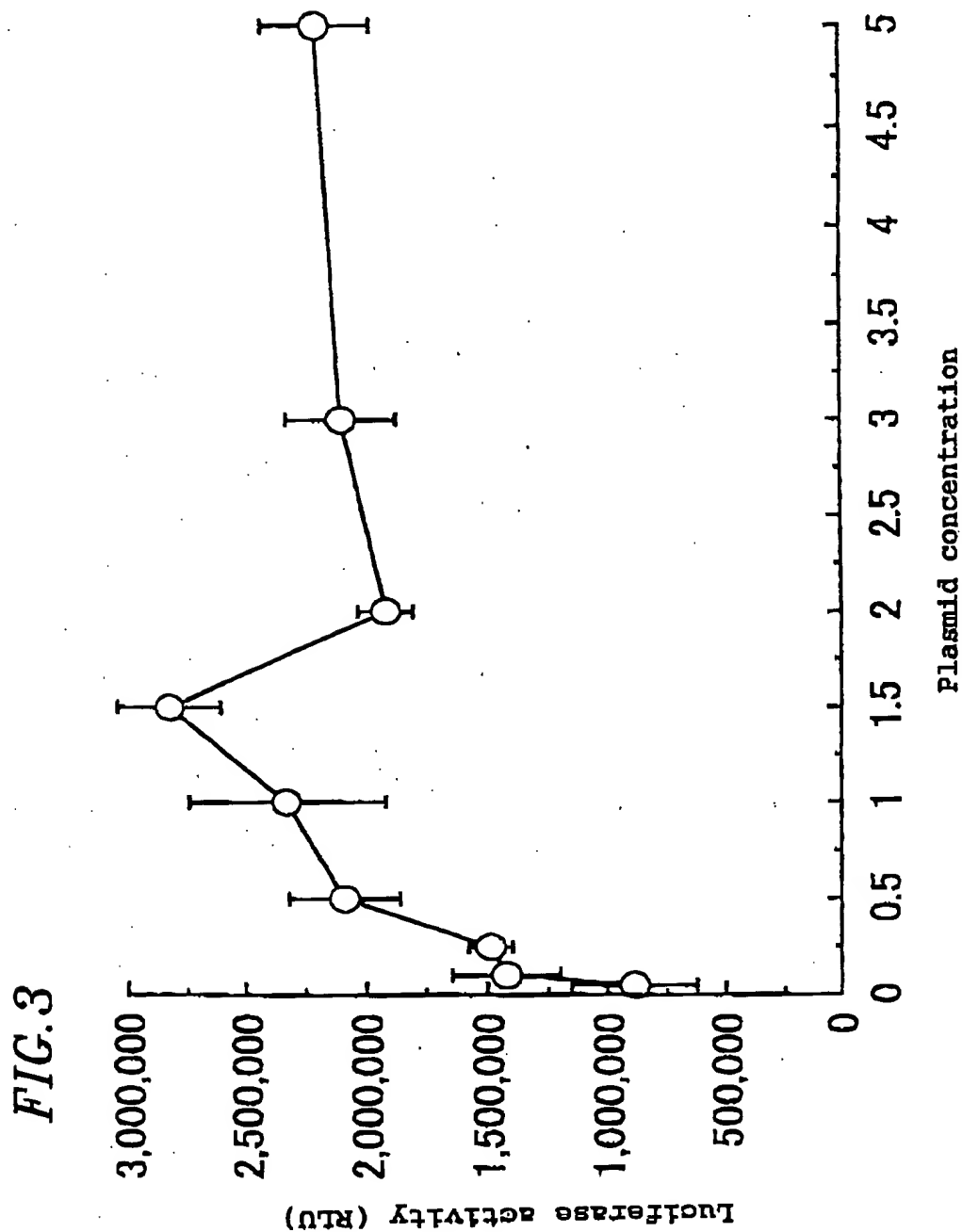
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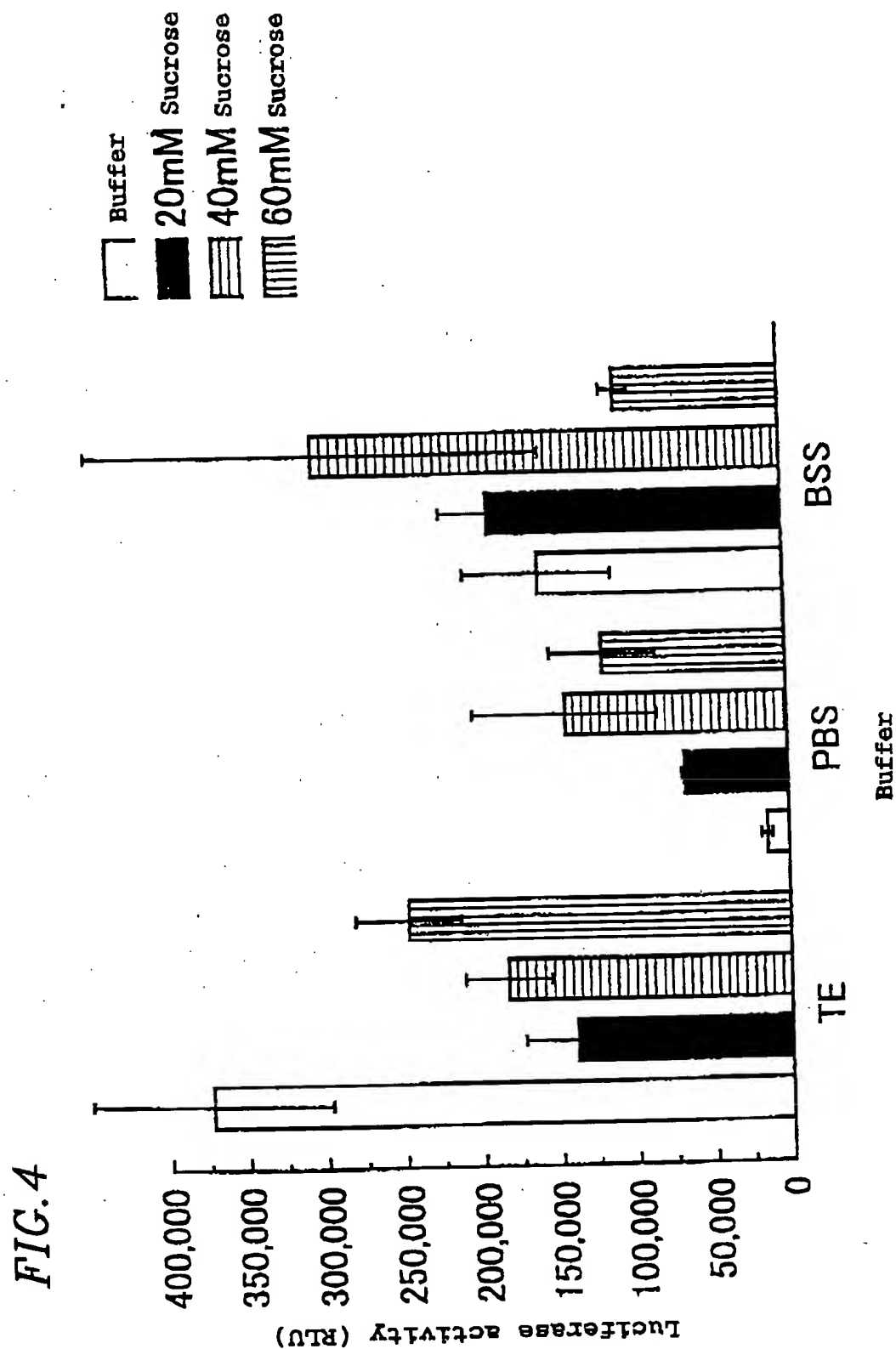
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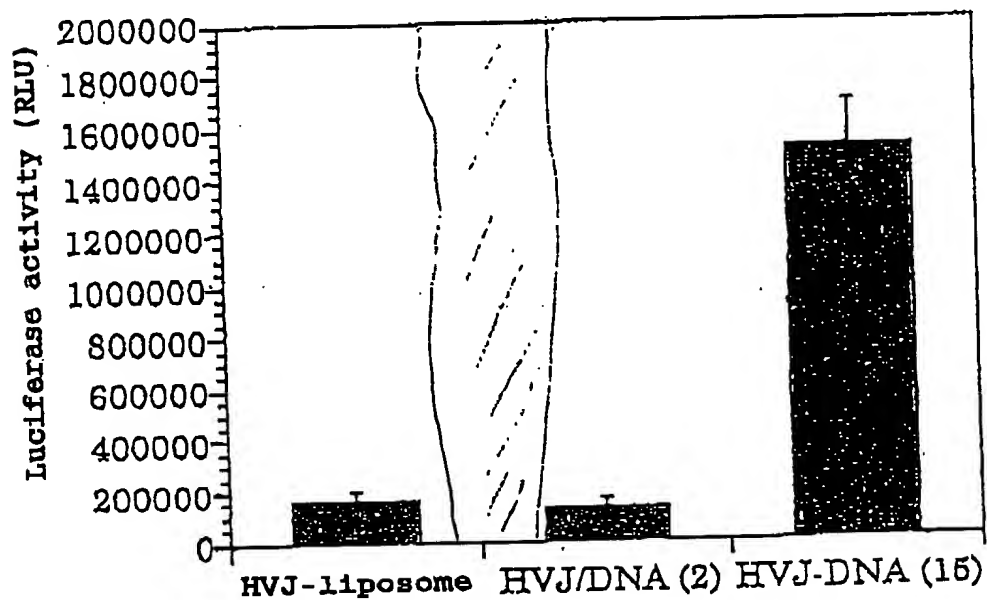


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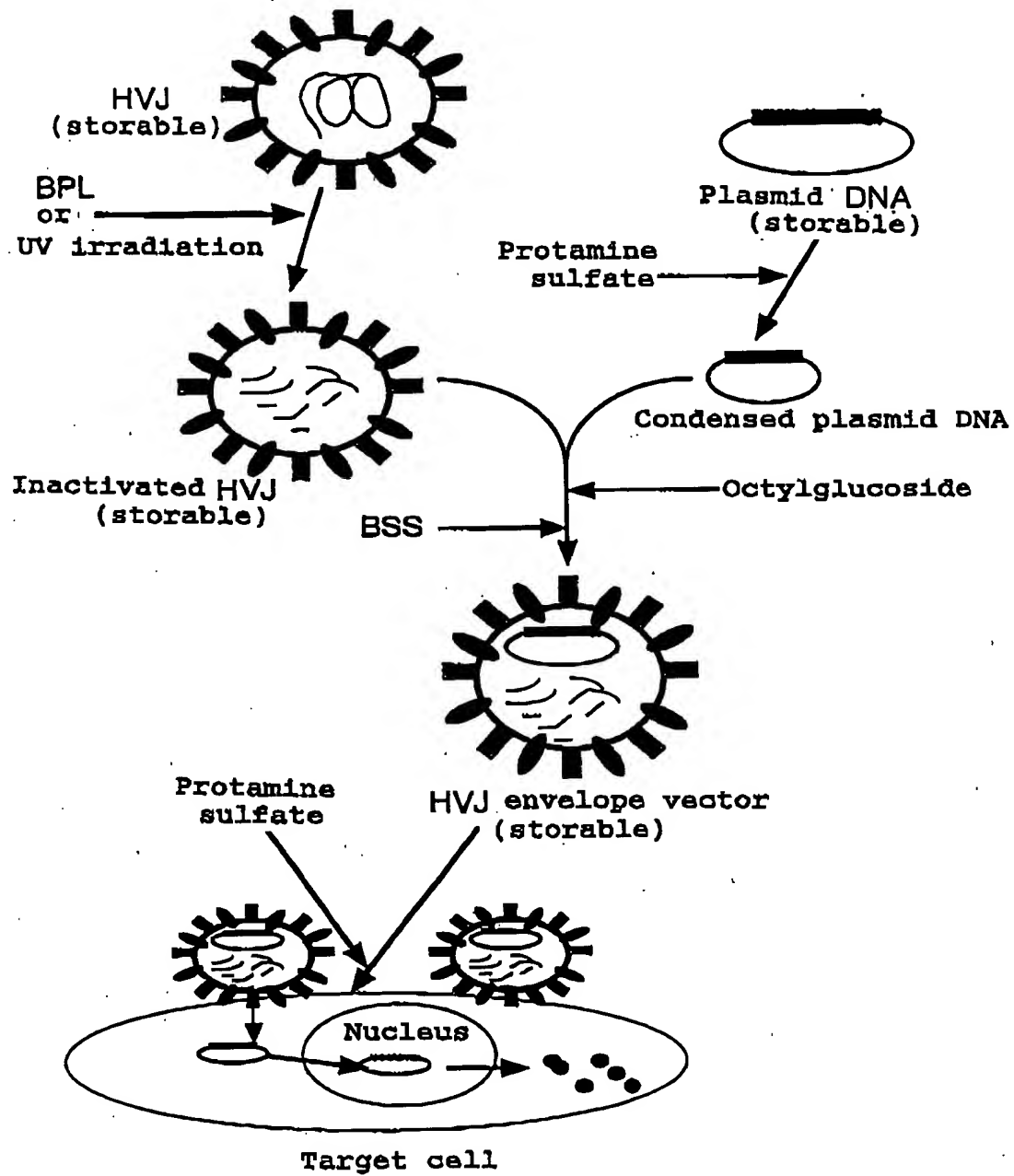
FIG. 5



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FIG. 6

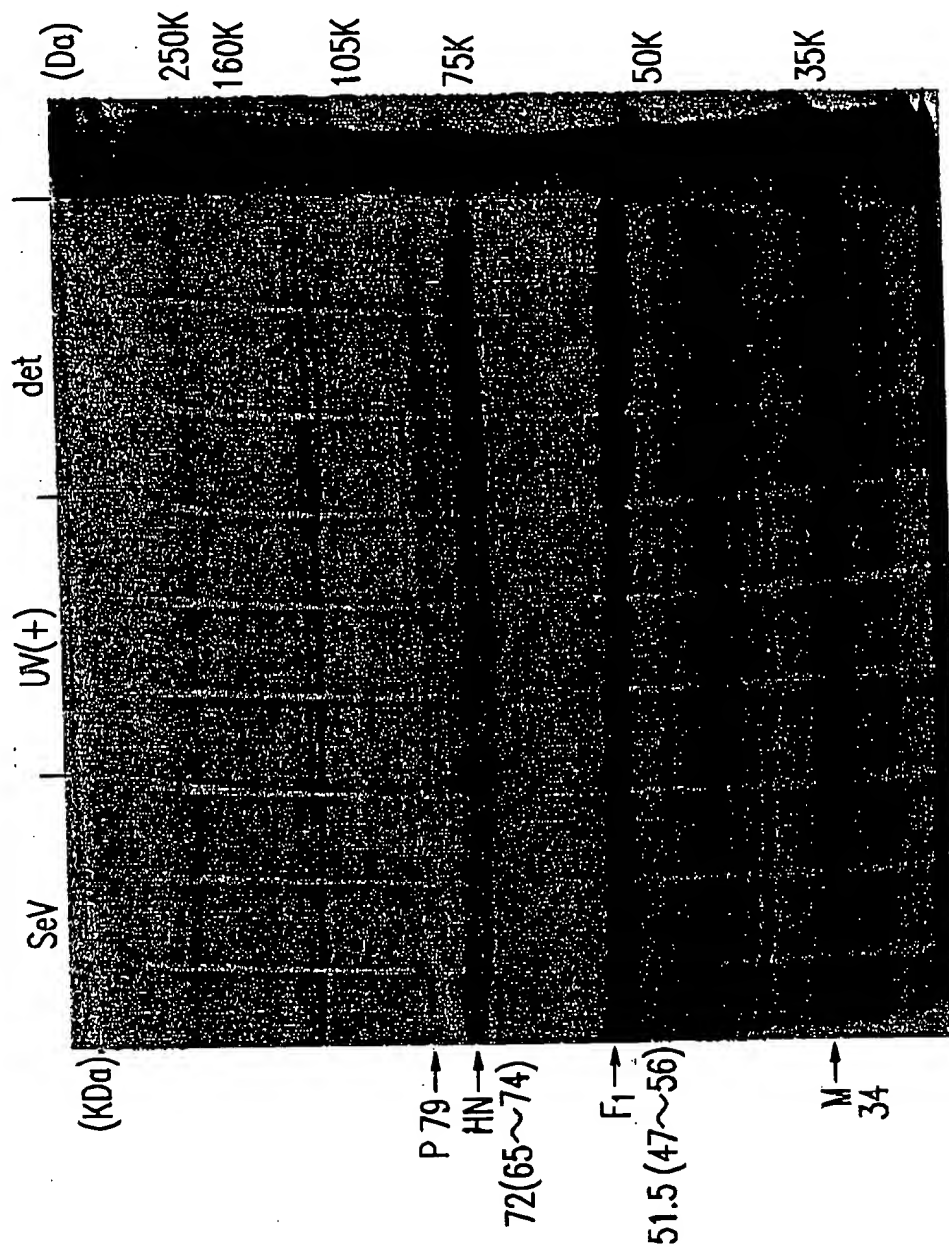
## Preparation of HVJ envelope vector



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FIG. 7

Protein profiles of HVJ, UV-inactivated HVJ,  
and HVJ envelope vector



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**FIG. 8**

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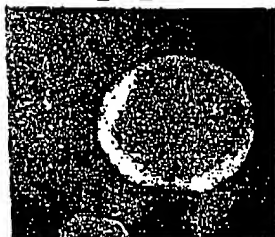
Electron micrograph of an HVJ envelope vector

(1) Untreated HVJ



100 nm

(2) HVJ containing no DNA, which was subjected to an octylglucoside treatment



(3) HVJ containing DNA, which was subjected to an octylglucoside treatment



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FIG. 9A

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Effects of octylglucoside on gene transfer  
by HVJ envelope vector

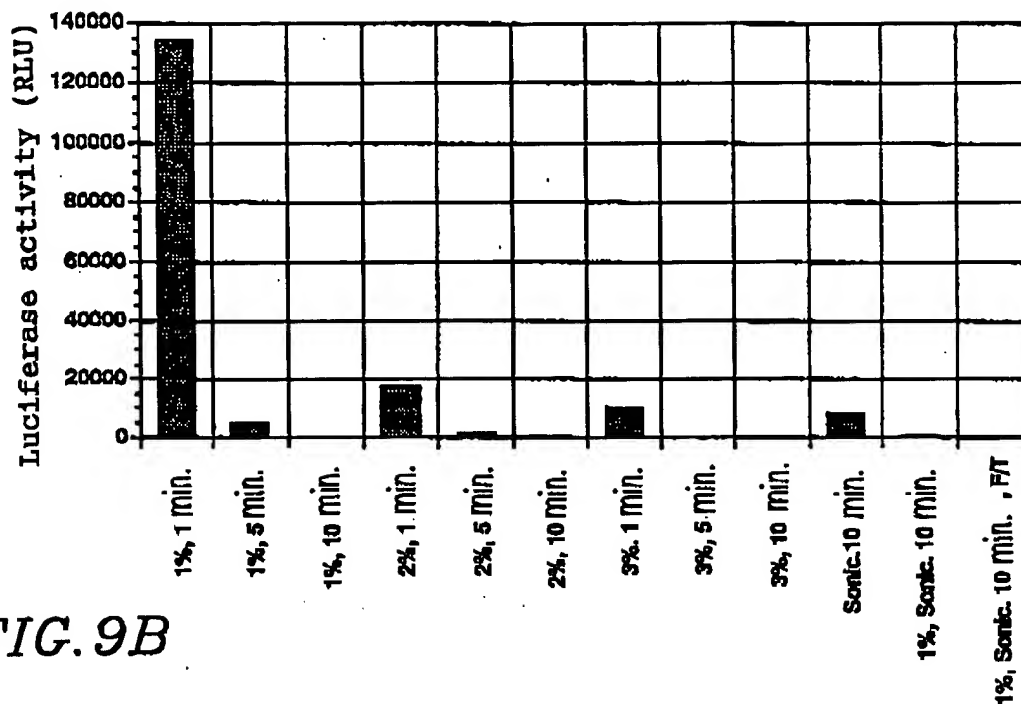
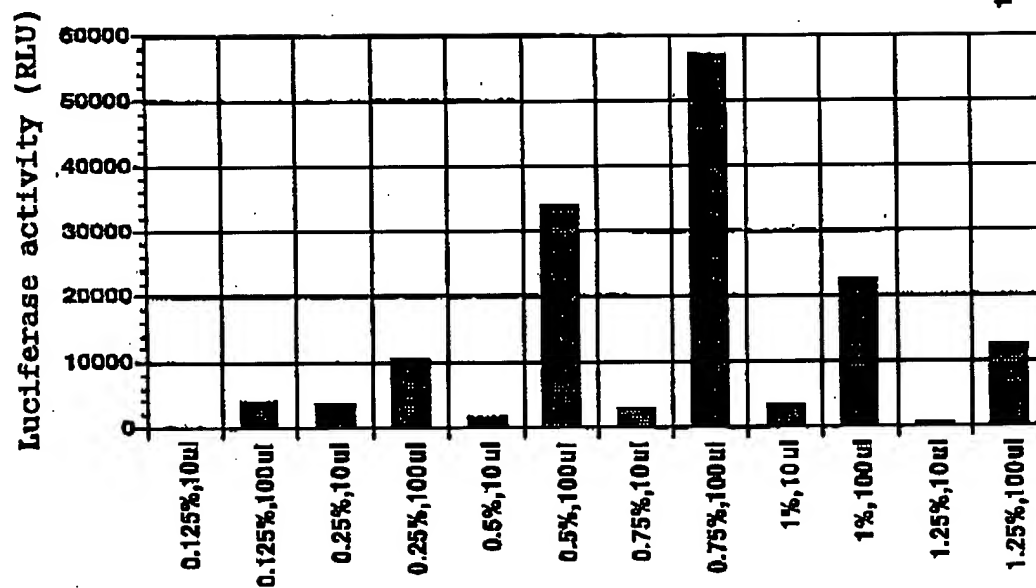


FIG. 9B

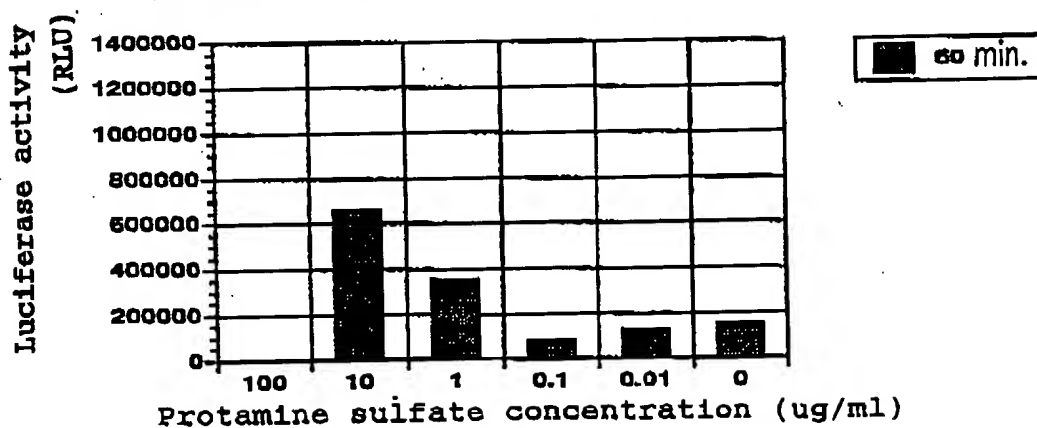
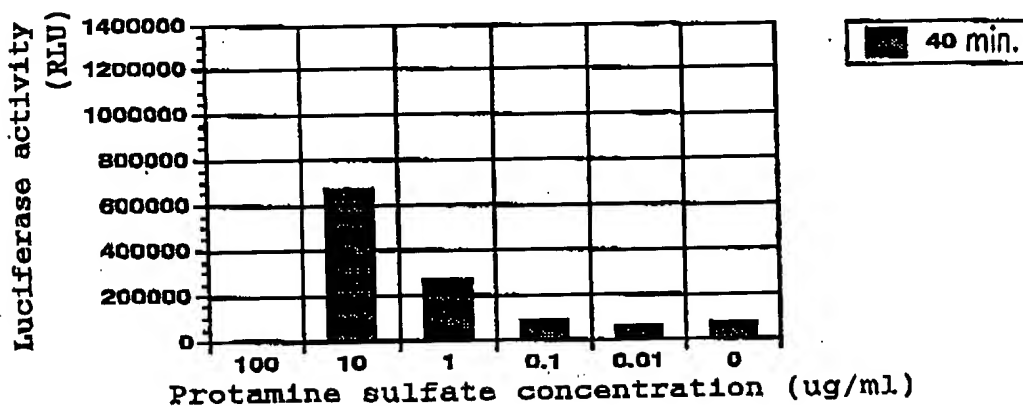
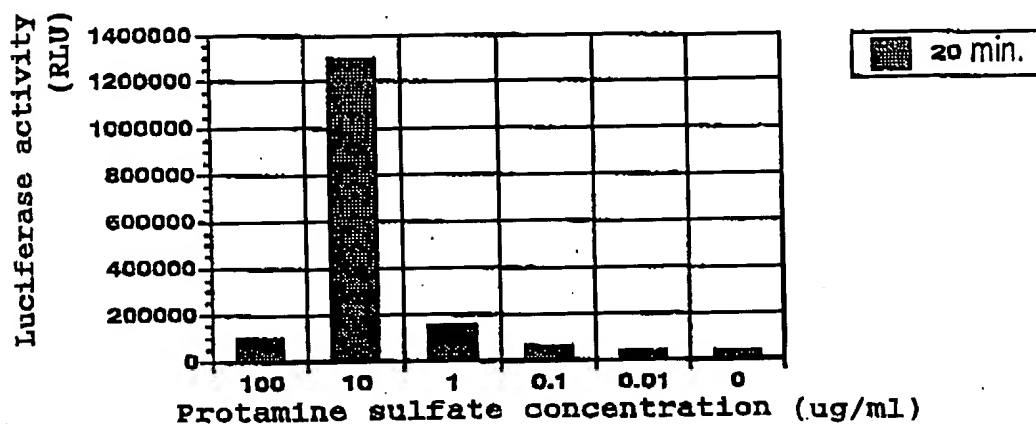




**FIG. 10A**

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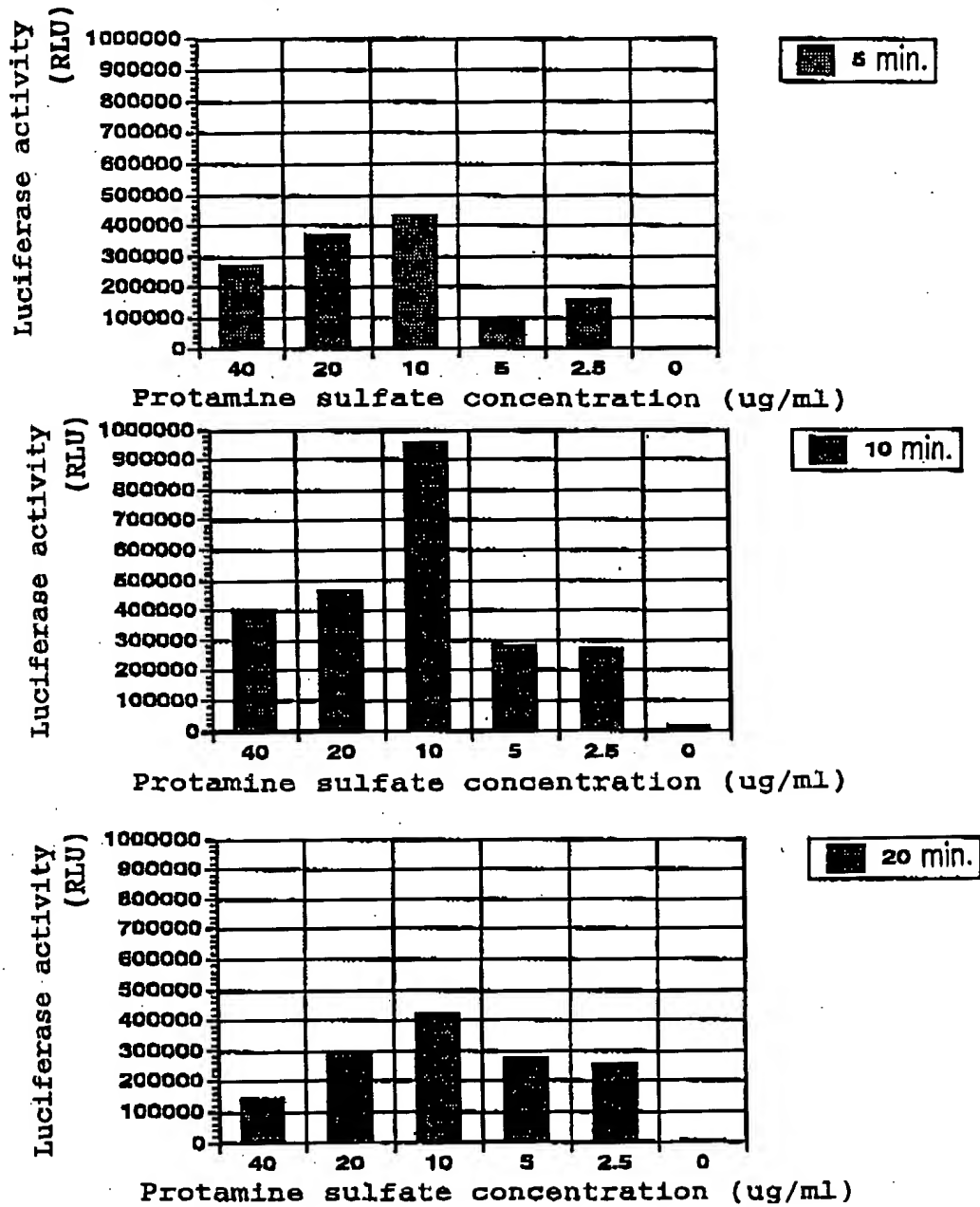
Effects of protamine sulfate on gene transfer by HVJ envelope vector



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**FIG. 10B**

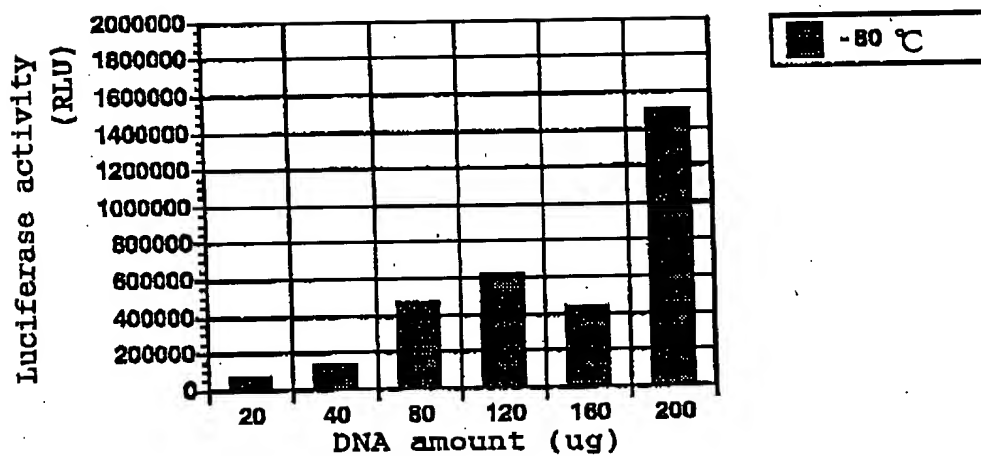
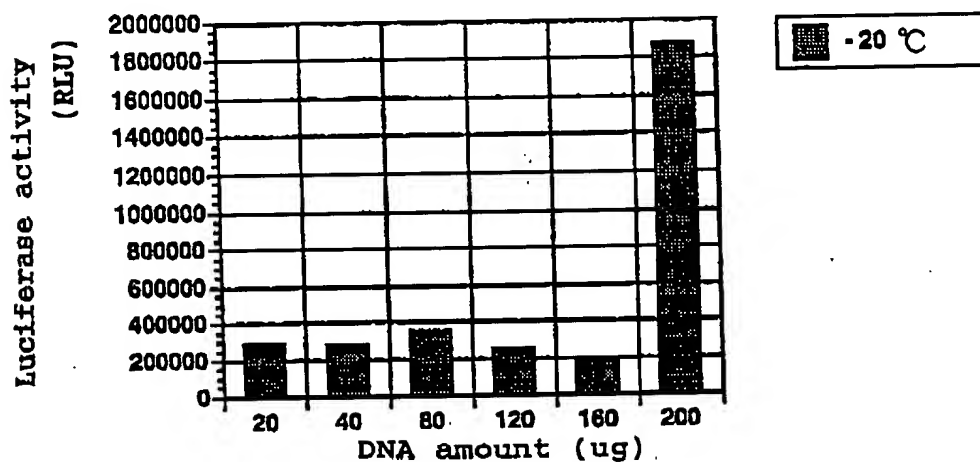
Effects of protamine sulfate on gene transfer by HVJ envelope vector



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**FIG. 11A**

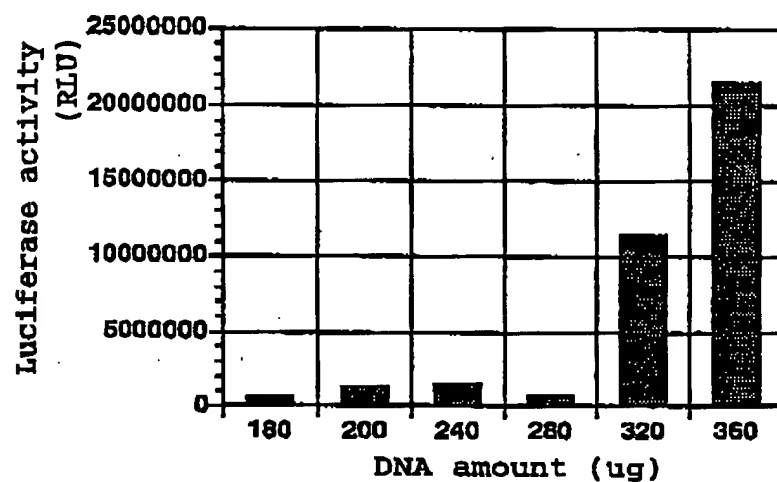
Effects of DNA amounts on gene expression using frozen HVJ envelope which has been treated with octylglucoside



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*FIG. 11B*

Effects of DNA amounts on gene expression  
by HVJ envelope vector



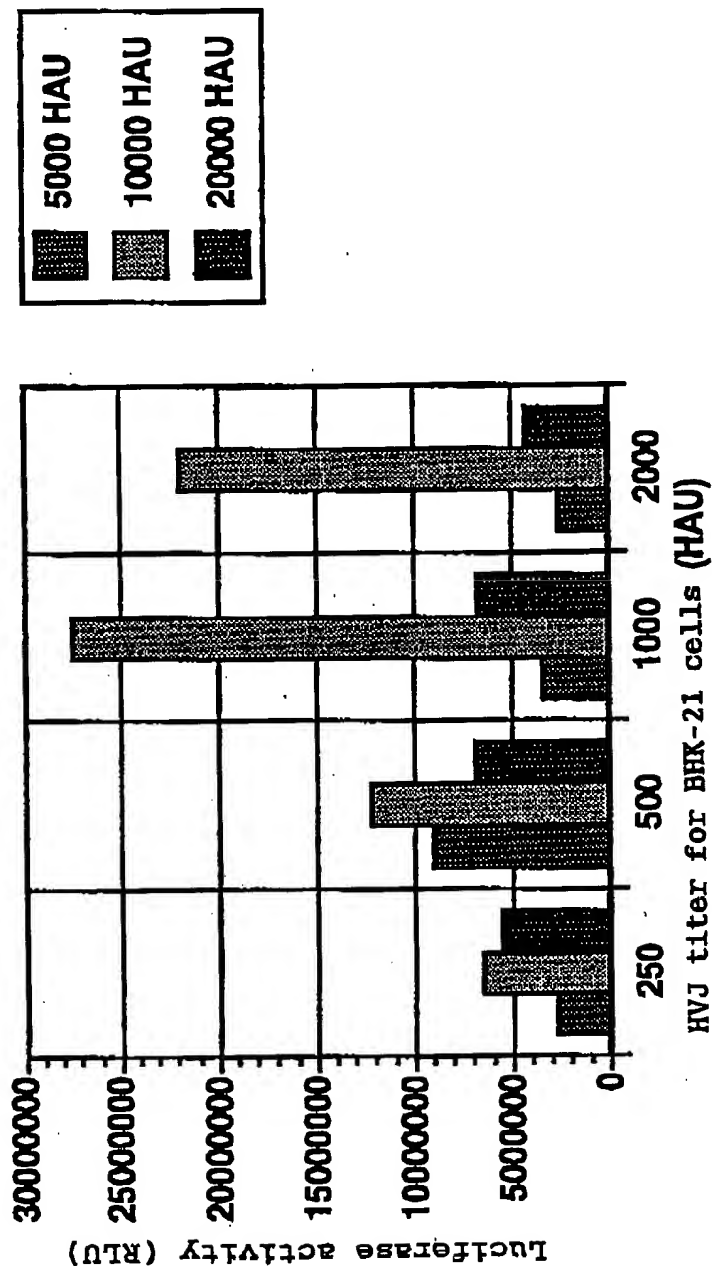
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FIG. 12

Effects of HVJ titer on gene expression

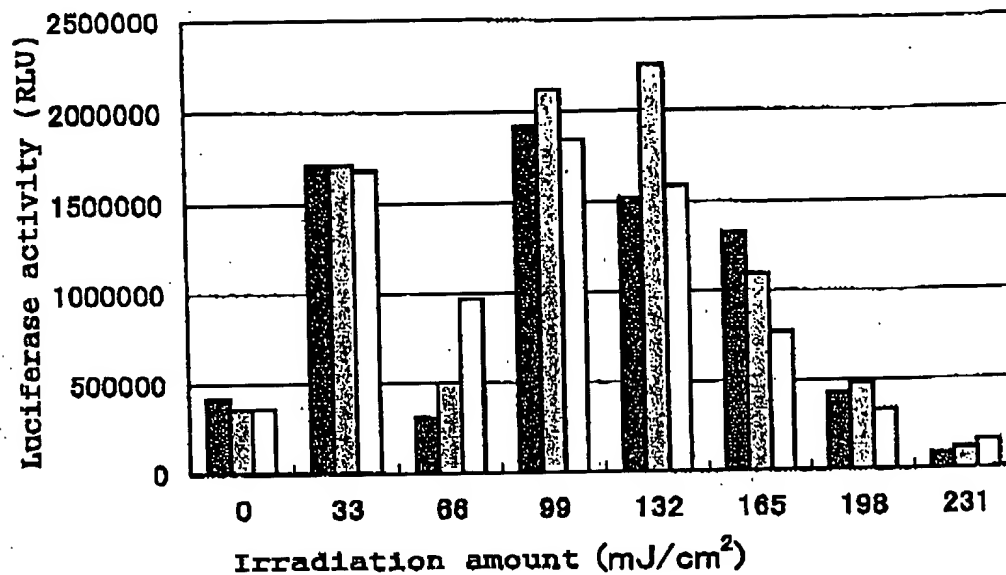


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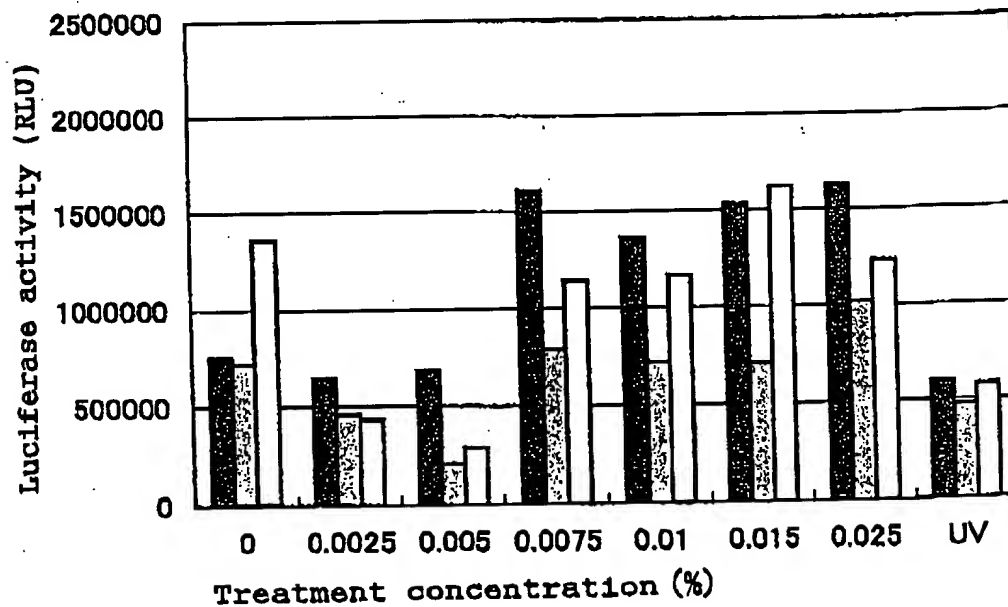
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**FIG. 13A**

Study of irradiation amount in UV inactivation

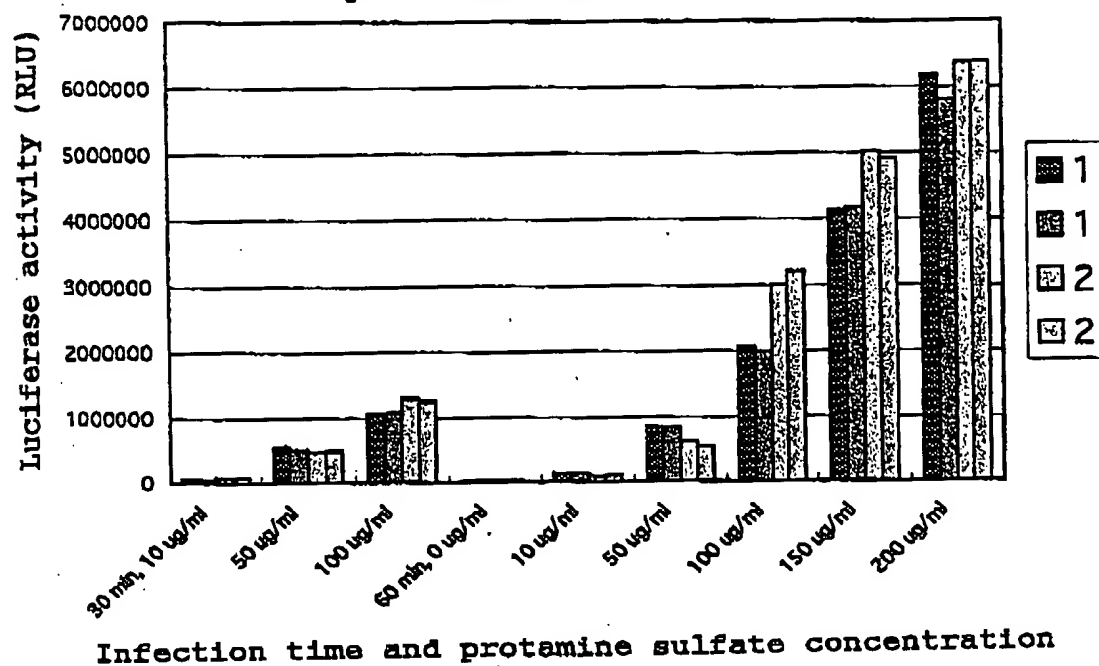
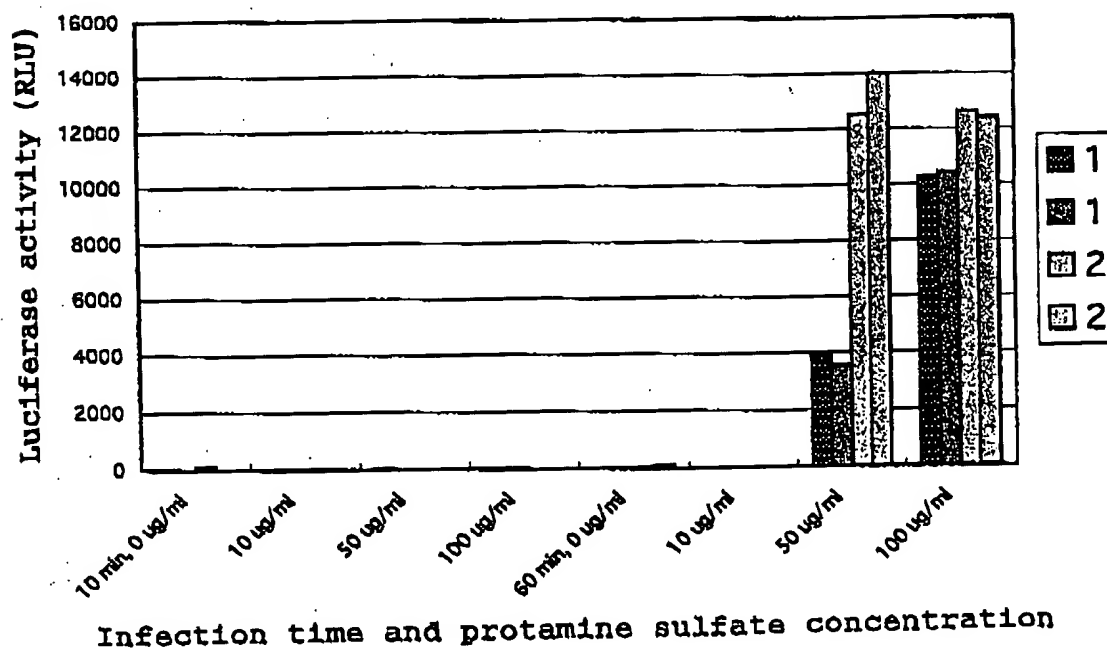
**FIG. 13B**

Study of treatment concentration in BPL inactivation





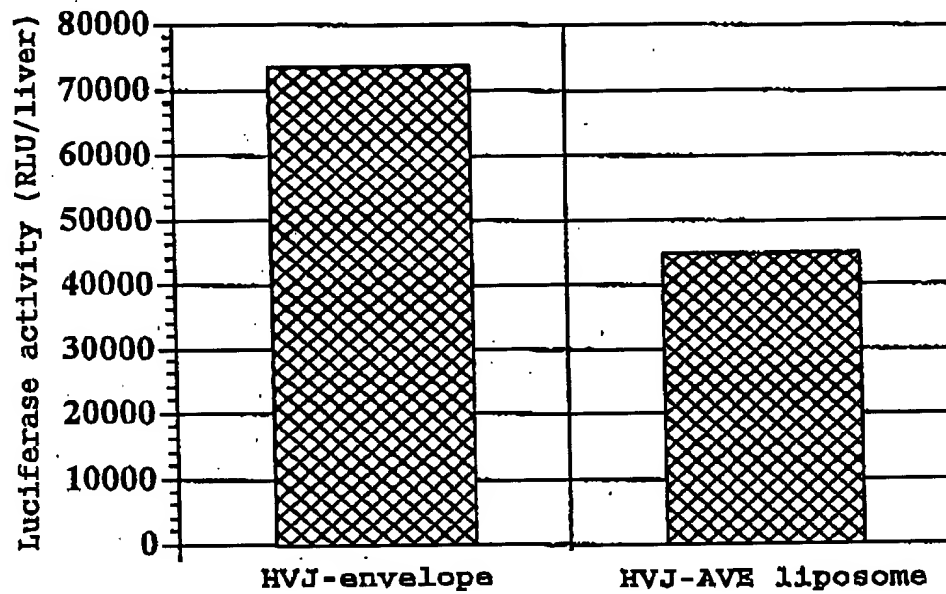
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**FIG. 14****SAS: Effects of infection time and protamine sulfate concentration****FIG. 15****HAEC: Effects of infection time and protamine sulfate concentration**

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**FIG. 16A**

Luciferase activity by HVJ envelope —  
vector in mouse liver

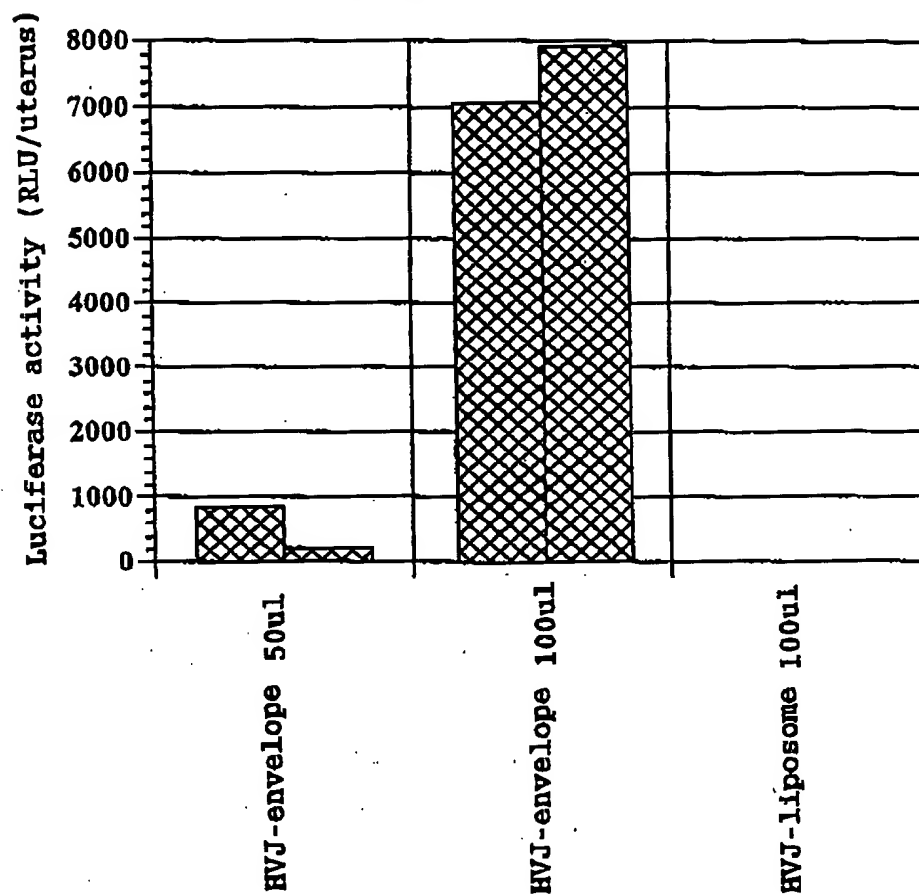


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**FIG. 16B**

Luciferase activity by HVJ envelope vector  
in mouse uterus



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**FIG. 16C**

LacZ expression by HVJ envelope vector in mouse uterus



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# FIG. 16D

Gene transfer into rat brain  
Gene transfer into central nervous system using new HVJ

## #1 HVJ-GFP

HVJ-GFP of 10,000 HAU was administered to SD rats (male, body weight: 300 to 400 g) via the cisterna magna or via the carotid artery. Samples were taken three to four days later.

Live sections were prepared, which were subjected to observation under fluorescence microscopy.

### (administration via the cisterna magna) ①

Incorporation into the brain surface was confirmed.

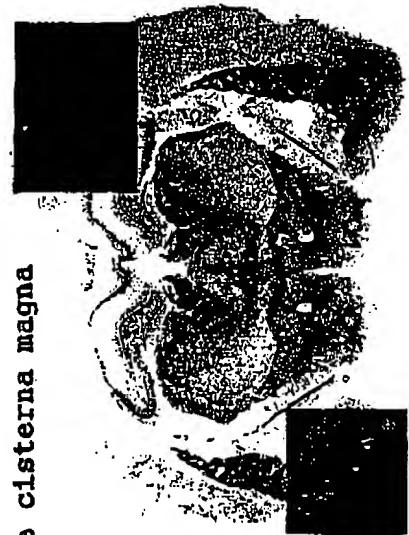
No incorporation into deep portions of the brain was confirmed.

No incorporation into the choroid plexus was confirmed, either. → administration via the cisterna magna is considered to result in permeation through the intrathecal space, so that expression is usually observed in the choroid plexus

### (administration via the carotid artery) ②, ③

Significant expression was confirmed on the administered side (left side). Expression was confirmed not only in the brain surface portions but also in the basal ganglia portion. Expression was also confirmed in the brain surface of the other brain, which was considered to have resulted from a flow to the other side through a collateral flow.

### ① Administration via the cisterna magna



### ② Administration via the carotid artery



### ③ Administration via the carotid artery

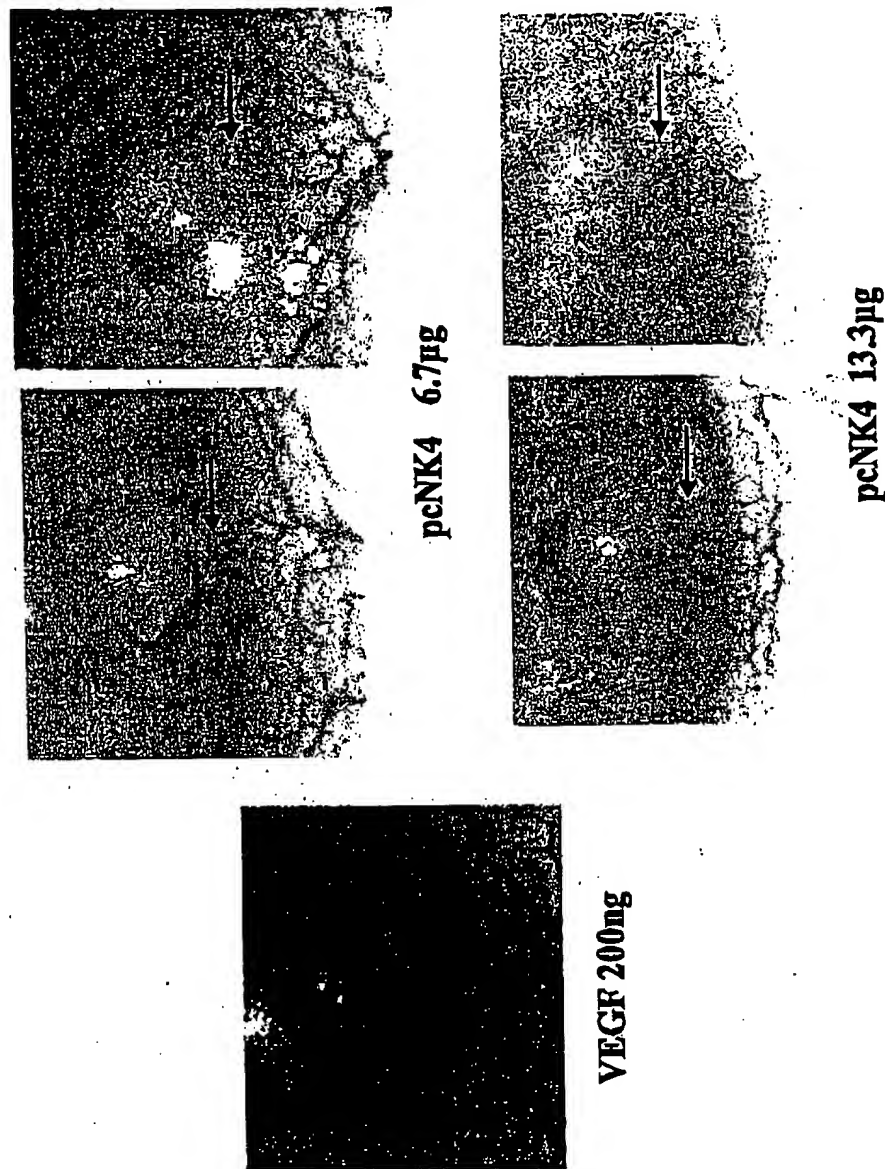


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**FIG. 16E**  
Inhibition of VEGF-induced angiogenesis  
by gene transfer using HVJ



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FIG. 16F



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Introduction of FITC-ODN into BHK-21 cells by HVJ envelope vector

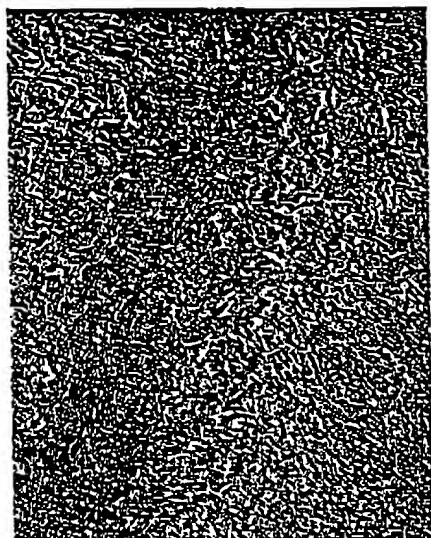
**FIG. 17A**

60 min

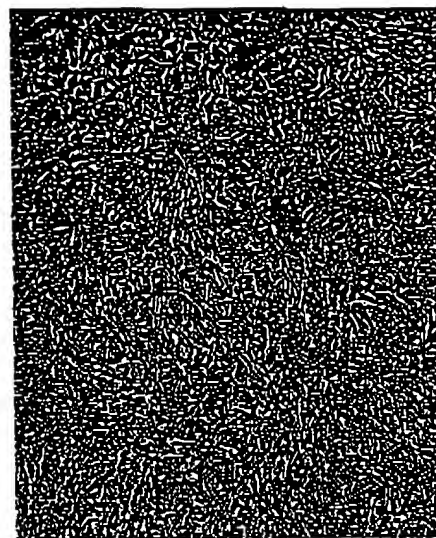
Fluorescence image



Phase-contrast image

**FIG. 17B**

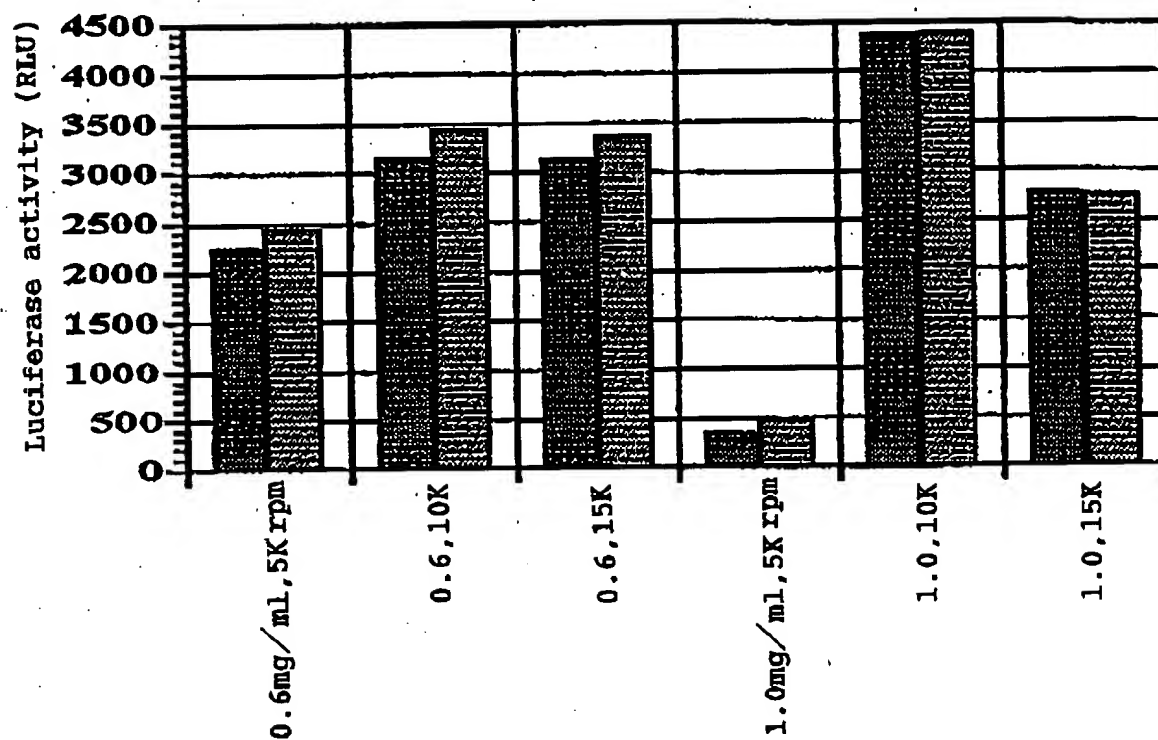
10 min





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**FIG. 18A** Gene transfer into NALM-6 by centrifugation with HVJ envelope

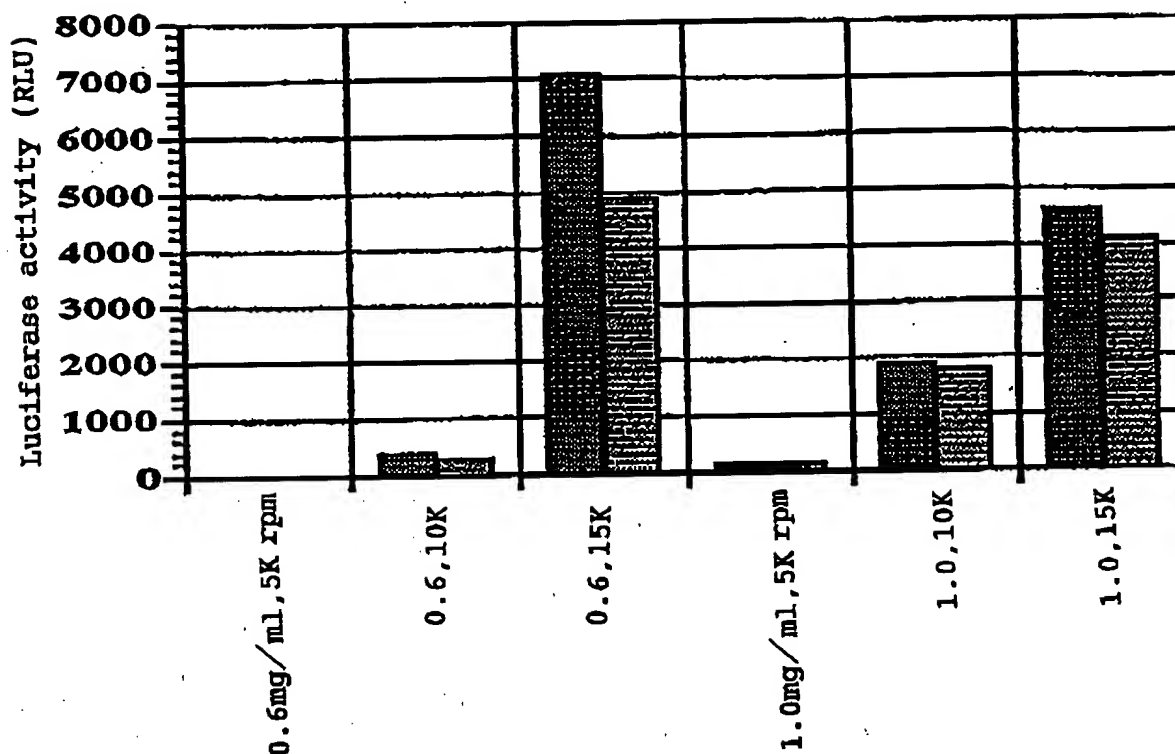


Protamine sulfate concentration and centrifugation

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**FIG. 18B**Gene transfer into CCRF-CEM by:  
centrifugation with HVJ envelope

Protamine sulfate concentration and centrifugation

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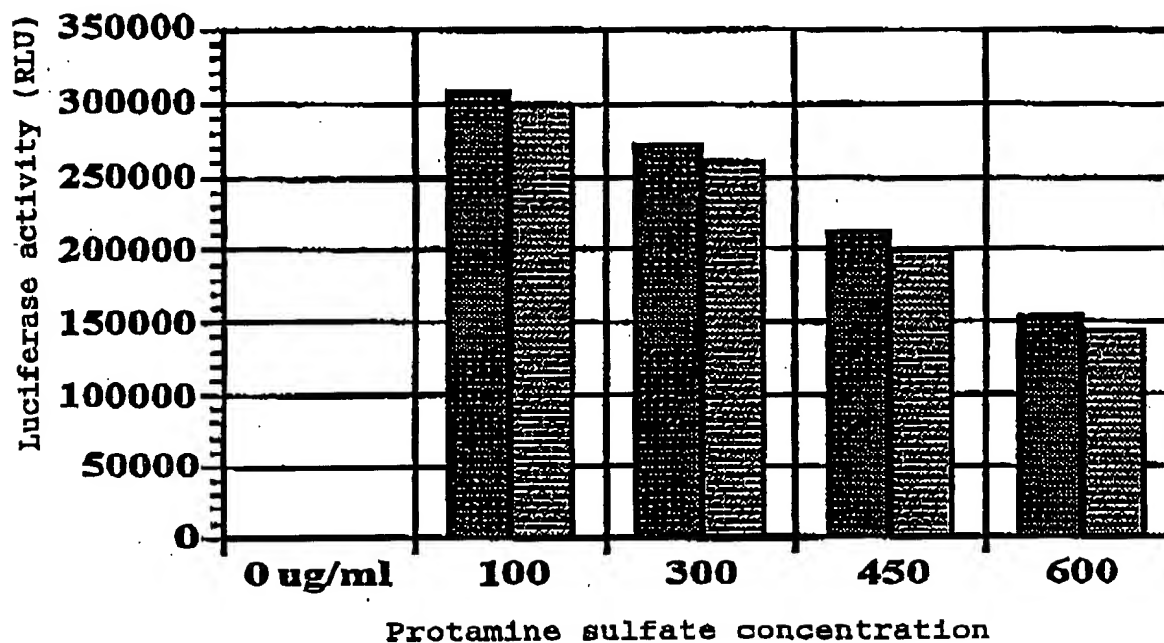
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**FIG. 18C**

Gene transfer into K-562 by centrifugation  
with HVJ envelope

(15 K rpm, 10 min, 20°C)



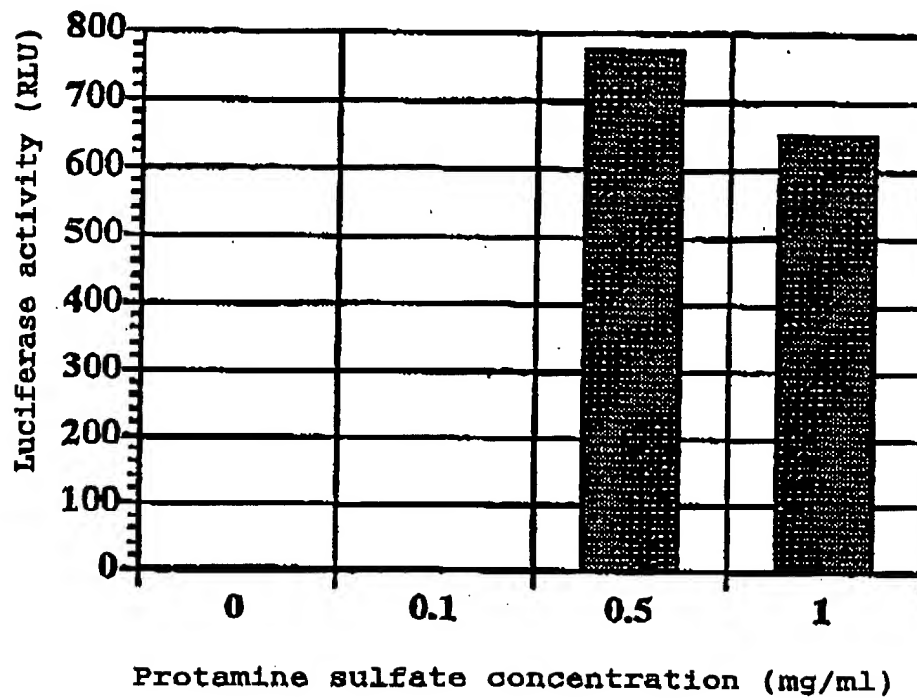
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**FIG. 19**

Gene transfer into mouse melanoma (B16-F1)  
mass using HVJ envelope



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FIG. 20

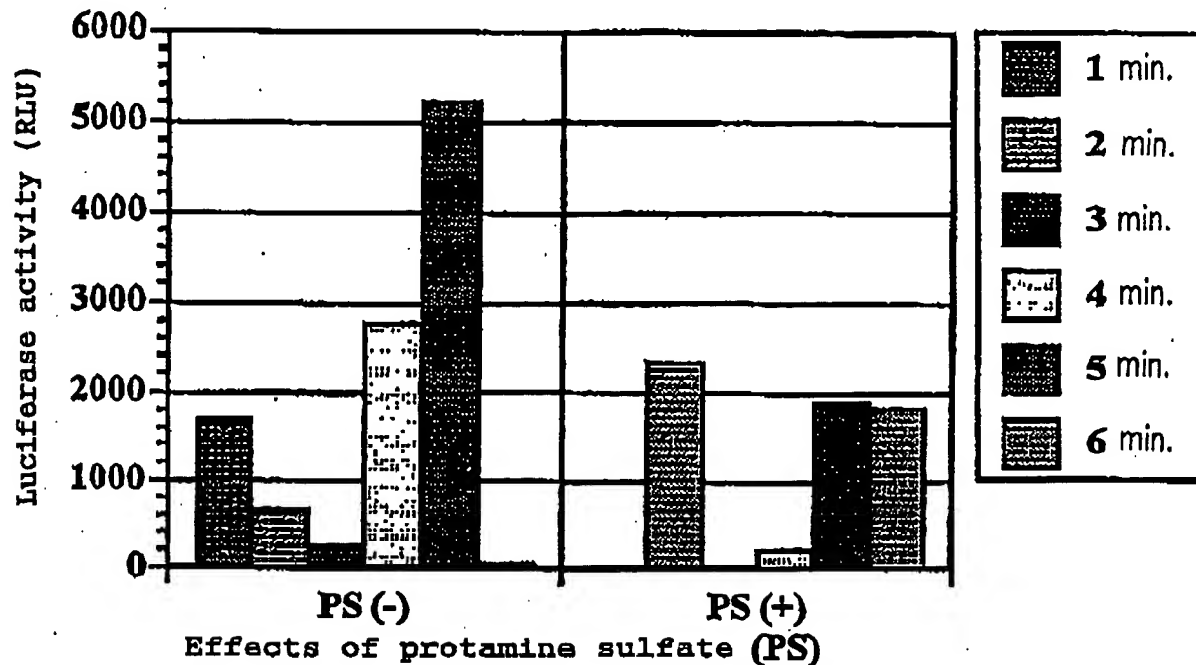
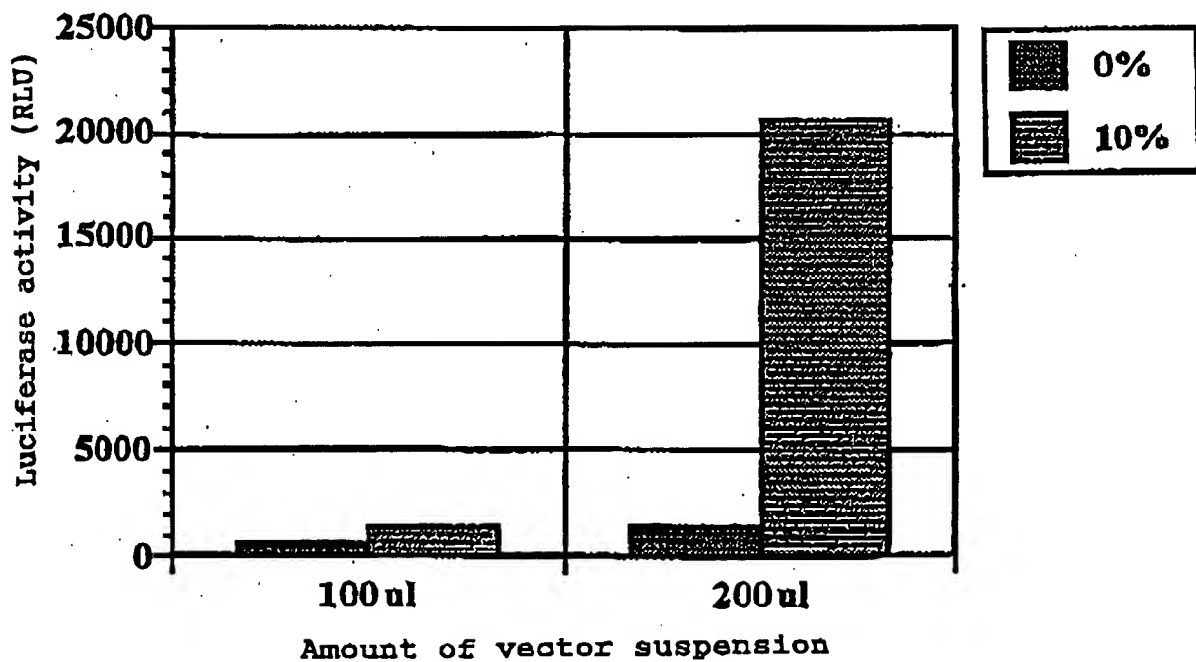


FIG. 21



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